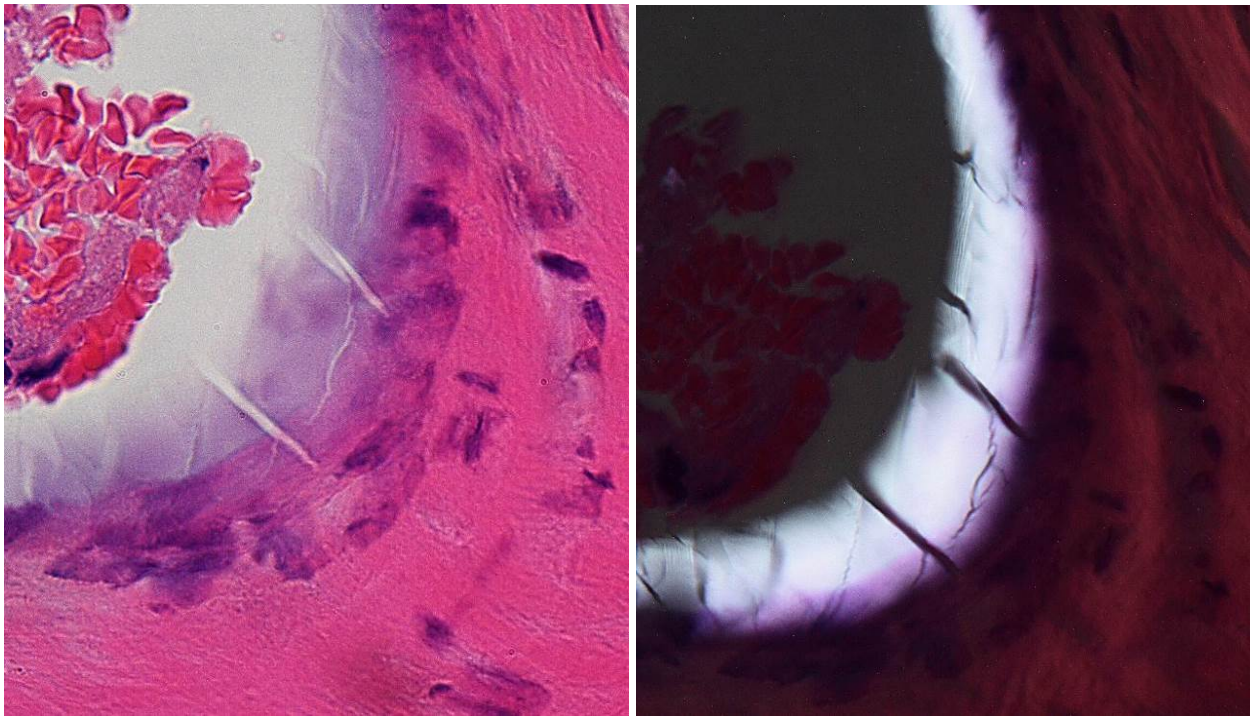


Figure set 13g.Cracked polypropylene degradation layer in regular (left) and the same field in polarized light (right), H&E

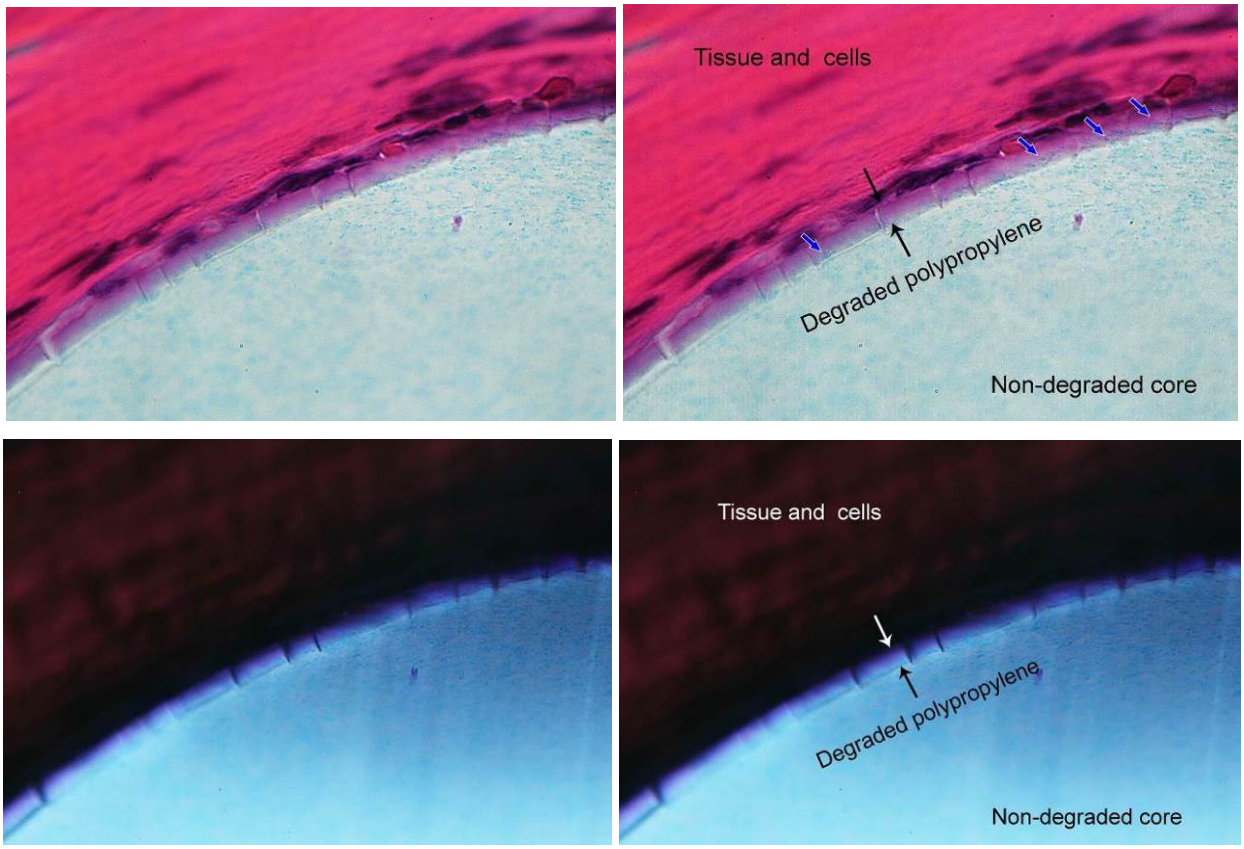


Figure set 13h.Cracked polypropylene degradation layer in regular (upper panel) and the same field in polarized light (lower panel), H&E, 100x

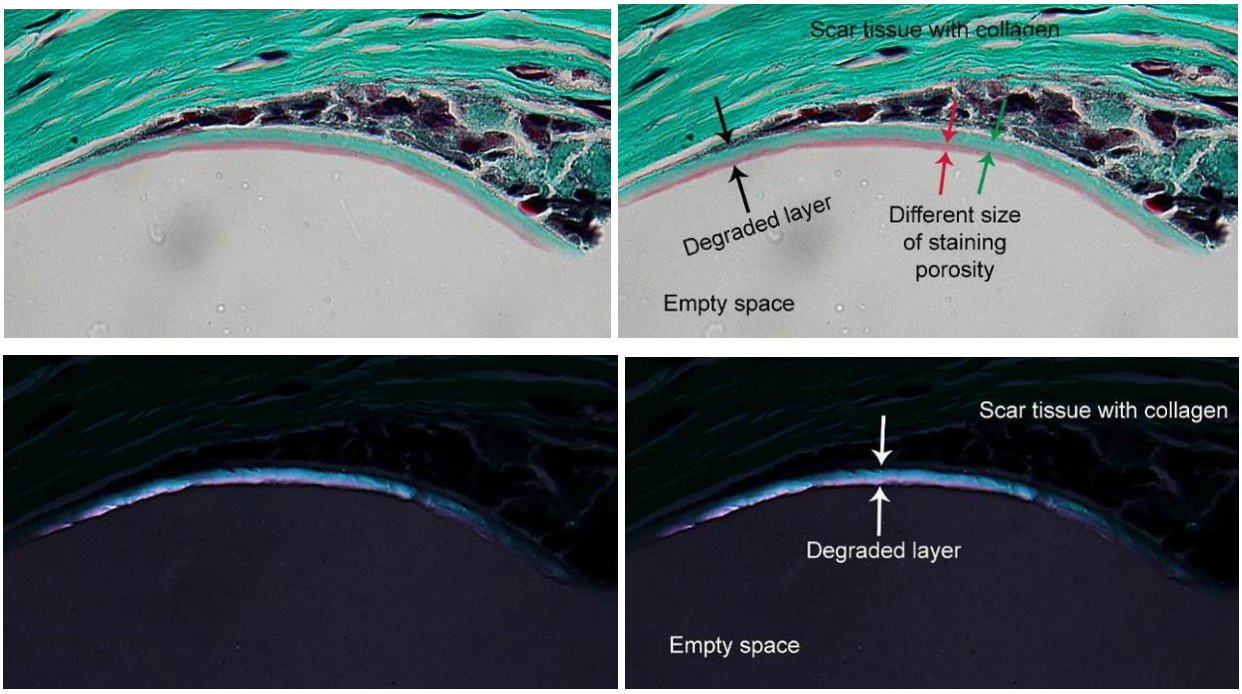


Figure set 13i.Higer degree of degradation and expansion of degradation nanocavities towards the surface of the degradation layer, in regular (upper panel) and the same field in polarized light (lower panel), H&E, 100x.

Red dye has smaller molecular size and higher penetration ability. The green dye becomes trapped in the larger nanopores.

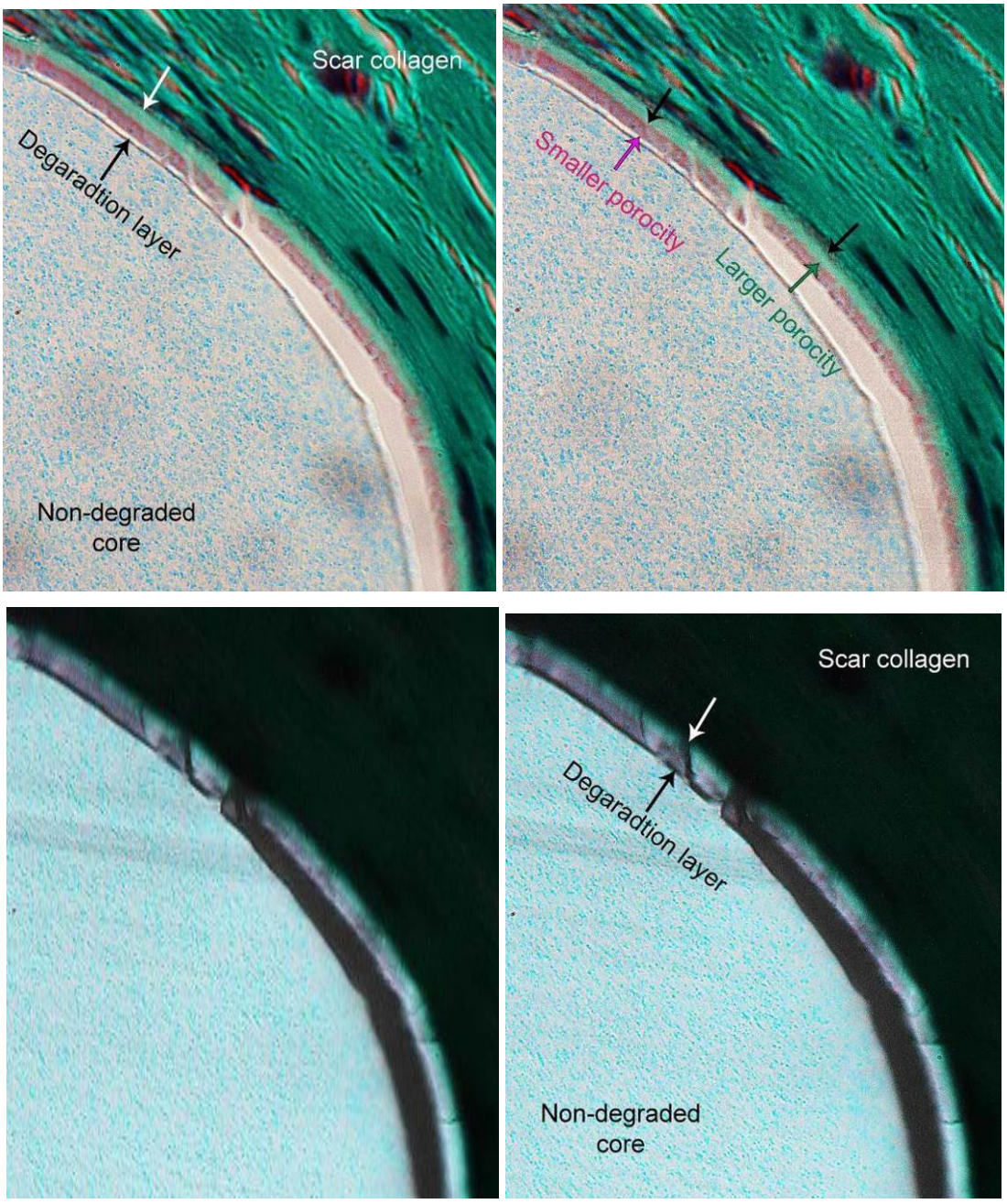


Figure set 13j.Higer degree of degradation and expansion of degradation nanocavities towards the surface of the degradation layer, in regular (upper panel) and the same field in polarized light (lower panel), H&E, 100x.

Red dye has smaller molecular size and higher penetration ability. The green dye becomes trapped in the larger nanopores.

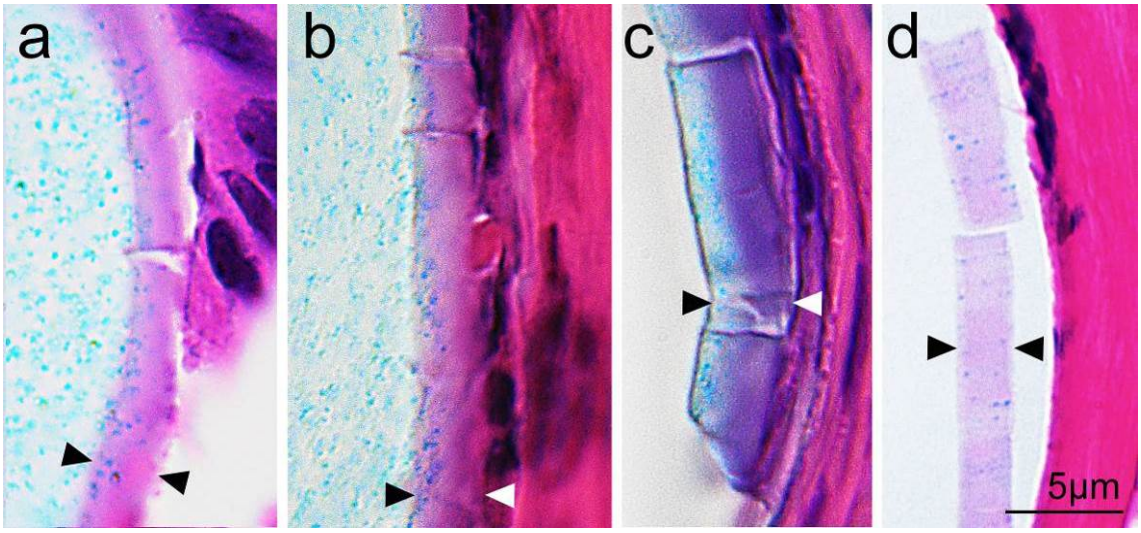


Figure set 13k. Granules of blue dye retained in the degraded layer, images include TVT slings.

[556]

"Degradation "bark" of the blue fibers manufactured with inclusion of blue dye granules, H&E stain, 100x objective with oil immersion: (a) and (b) non-degraded core (left half of the images) and the degraded layer (between arrowheads). Note that the blue granules are retained in the layer of degraded polypropylene. Within the degraded "bark", the granules degrade and loose color toward the surface. In (c) and (d) the non-degraded core detached from the slides similarly to Figure 2(c and d). At these sites, presence of the granules in the separated "bark" cannot be attributed to an overlap with the core."

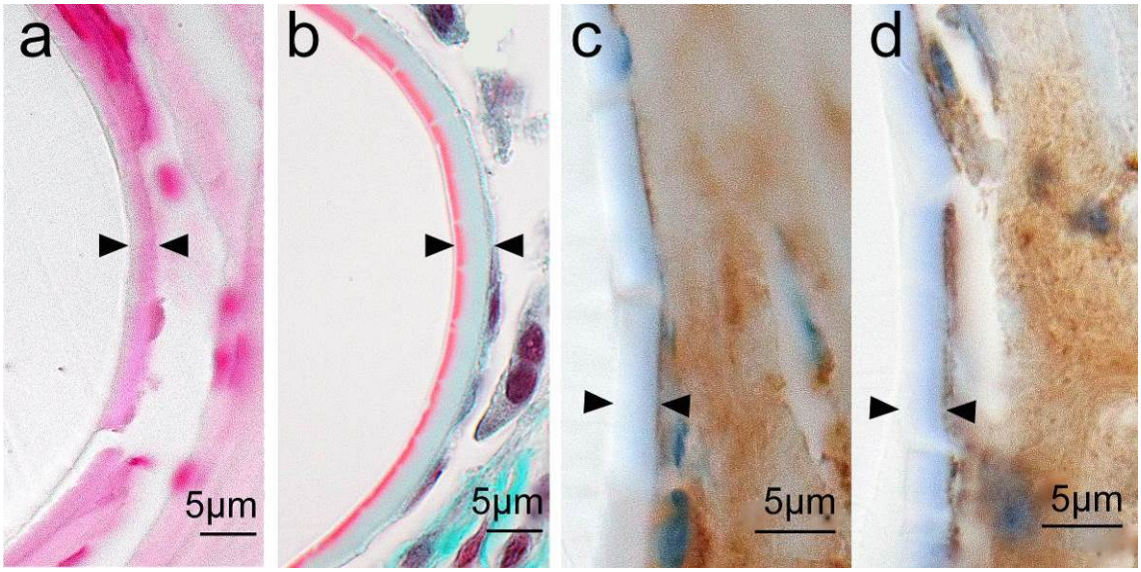


Figure set 13l. Additional stains, images include TVT sling. [556]

"*Additional stains, all images taken with 100x oil immersion objective and cropped to a different magnification, polypropylene degradation layer is pointed between arrowheads: (a) Von Kossa stain is negative for calcium in the brittle "bark" (would stain calcium black), (b) trichrome stain shows that the deeper parts of the "bark" have smaller staining porosity (red) than those close to the surface (green) which correlates with TEM findings [Figure 6(b)], (c) immunohistochemical stain for immunoglobulin G (IgG, stained brown). IgG is present in almost all human tissues and fluids. It is deposited on the surface of degraded polypropylene but is not mixed within it. (d) Immunostain for the oxidizing enzyme of inflammatory cells myeloperoxidase (stains brown)."*

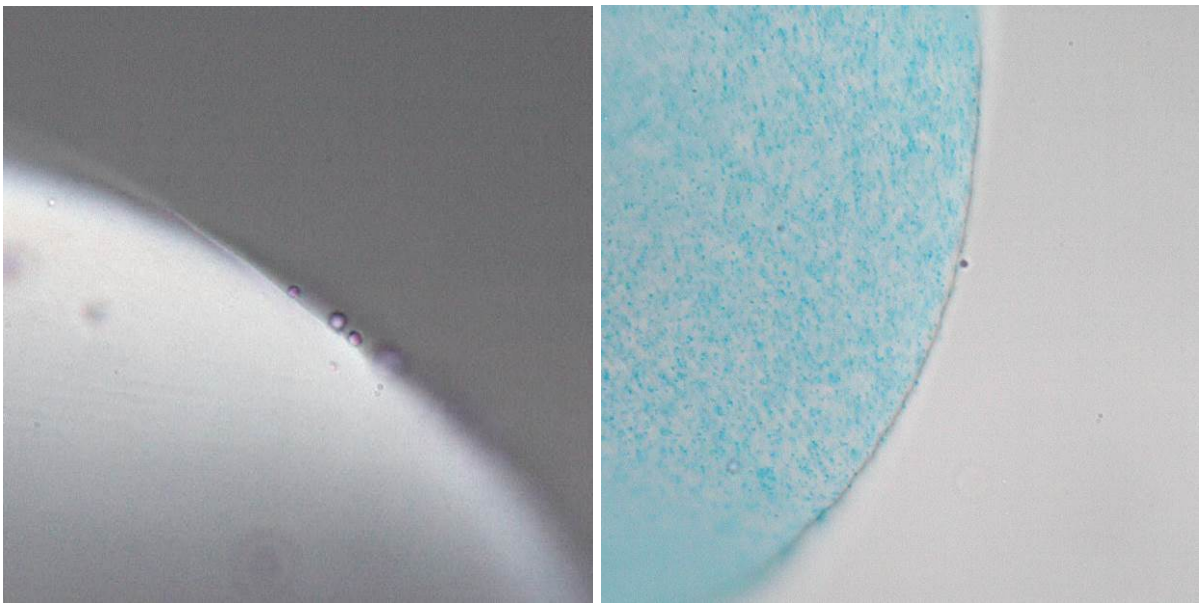


Figure set 14. Absence of degradation in pristine TVT meshes after exposure to formalin (up to 4 months), H&E, 100x.

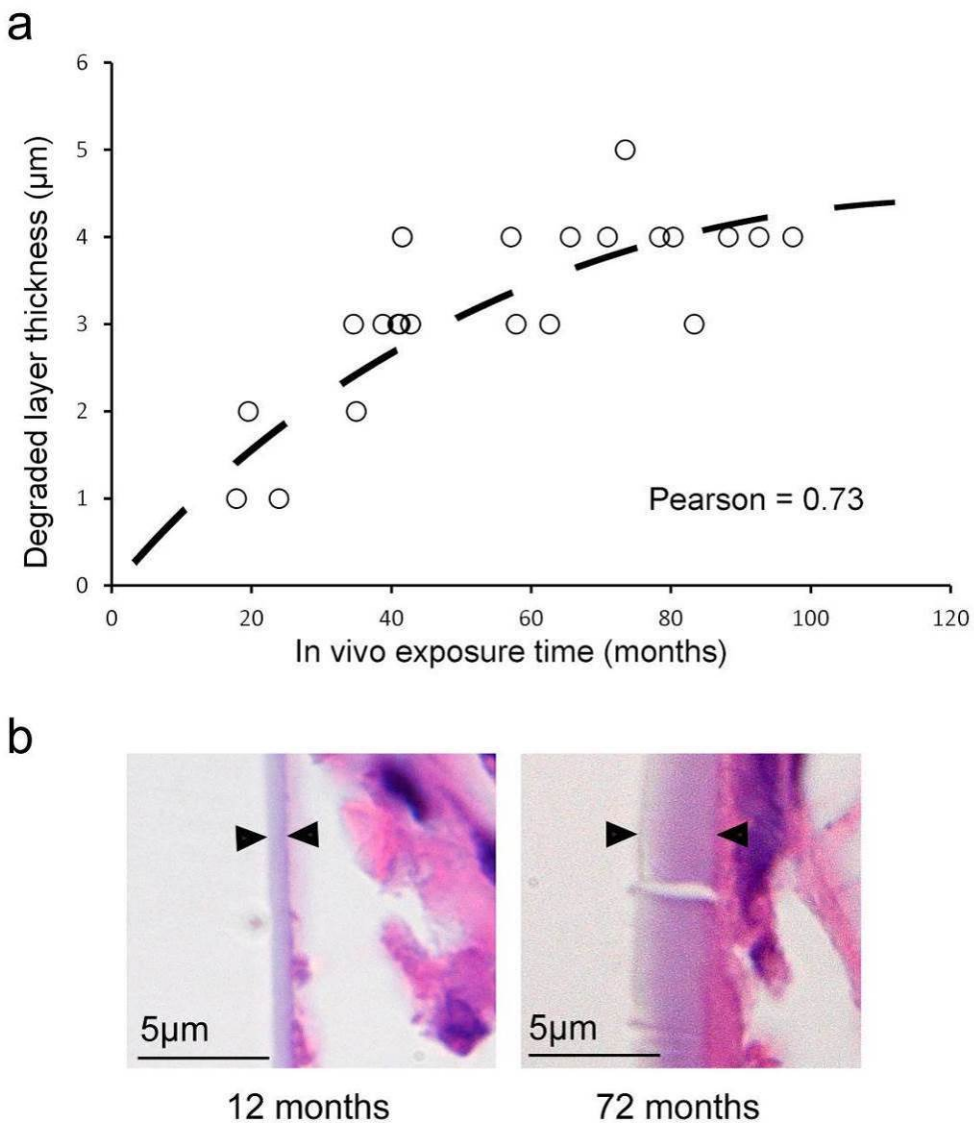


Figure set 15. TVT meshes analyzed as a group. [556]:

"Duration of in vivo exposure versus thickness of degraded layer in a group of explants of the same manufacturer and the same mesh design. (a) Thickness of the degradation "bark" increased over the years in vivo (Pearson correlation50.73). Note the trend of plateauing after 5–6 years. There was no correlation of the thickness with the duration of specimen storage in formalin (not shown, Pearson520.06). (b) Comparison of the "bark" in meshes explanted after 12 and 72 months in the body, H&E, 3100 objective with oil immersion, images cropped to the same magnification factor."

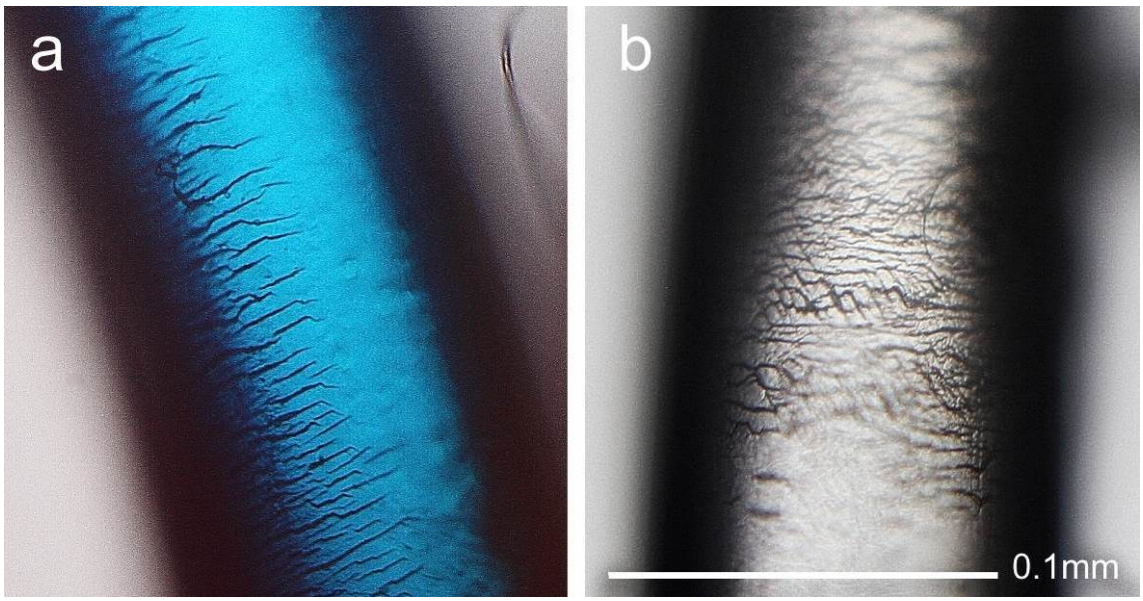


Figure set 16a. Cracking on the surface of TVT mesh fibers immediately after removal from the body. [556]:

"*Surface of the mesh fibers immediately after explantation from the body, transvaginal sling explanted due to pain 9 years after implantation, light microscope, 20x objective with image crop. Mesh fibers at the specimen edges had no covering tissue and could be examined as they were in the body, avoiding possible artifacts of tissue removal, drying or contact with formalin. Both blue (a) and clear (b) fibers showed surface cracking."*

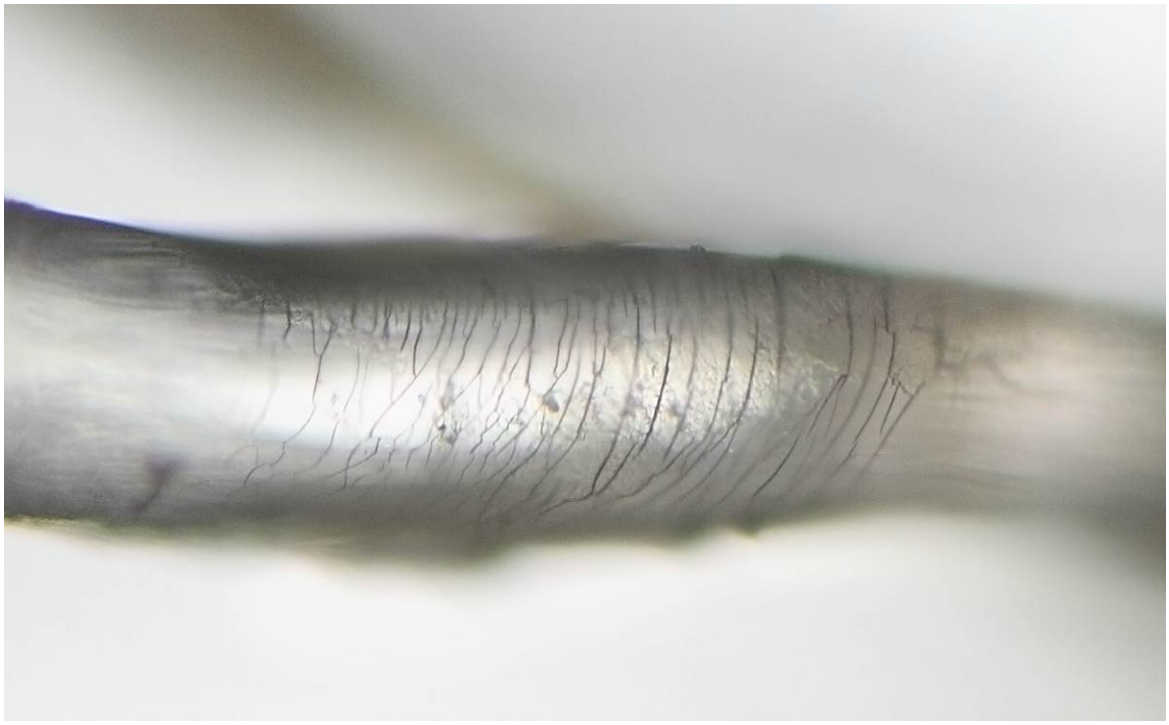


Figure set 16b. Cracking on the surface of TVT mesh fibers.

The microphotograph is composed of images focused at different planes. The mesh fiber was examined in regular light microscope before the specimen was divided (photo below). The examined and photographed mesh fiber was in the portion which was taken by the defense expert.

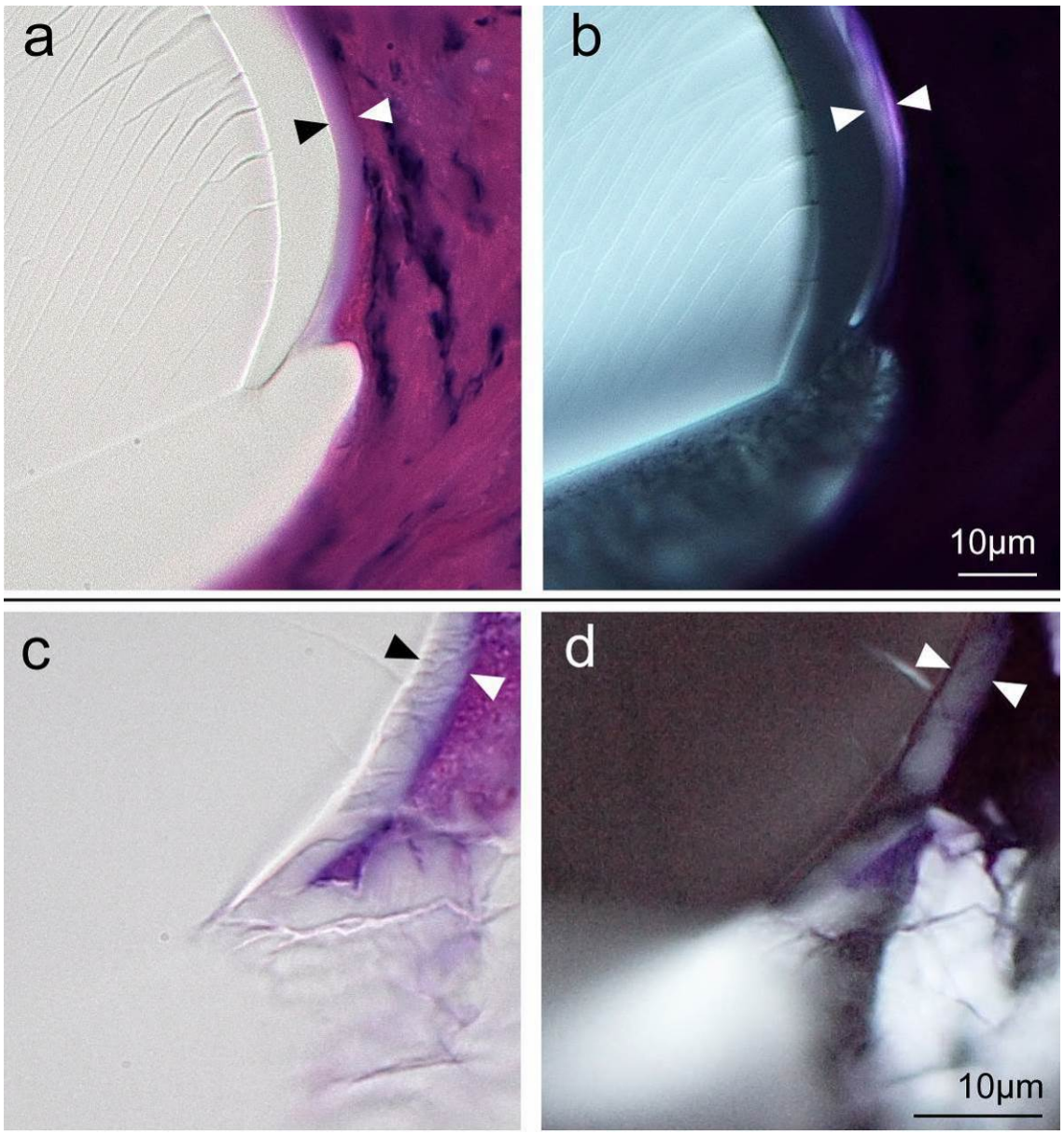


Figure set 17. Melting of the degradation layer under the heat of surgical cautery. [556]

"Melting of both non-degraded and degraded polypropylene caused by the surgical cautery, H&E, 100x oil immersion: (a) and (b) the same site of fiber melting in regular and polarized light, (c) and (d) another site showing melding point. While molten the non-degraded core and the degradation "bark" formed a common pool of material."

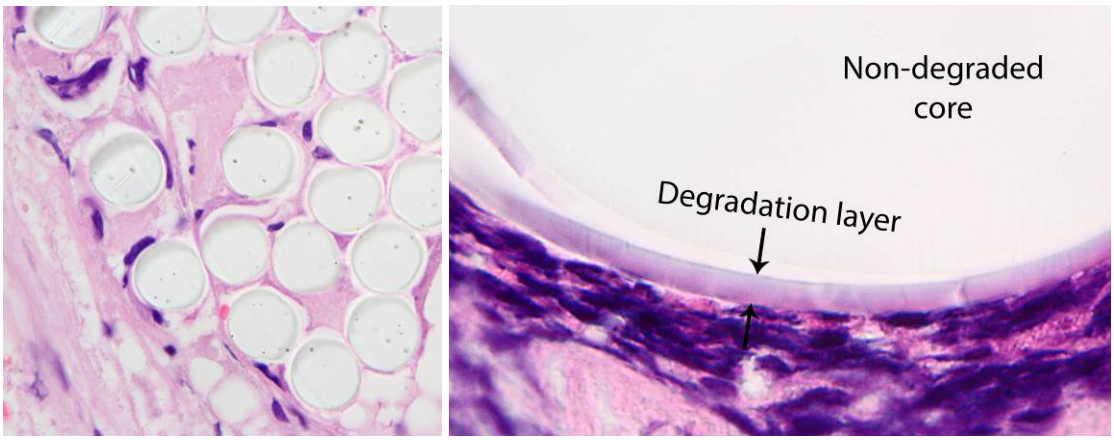


Figure set 18a. Comparison of a non-polypropylene suture on the left and Prolene mesh on the right implanted at the same time, H&E, 100x objective.

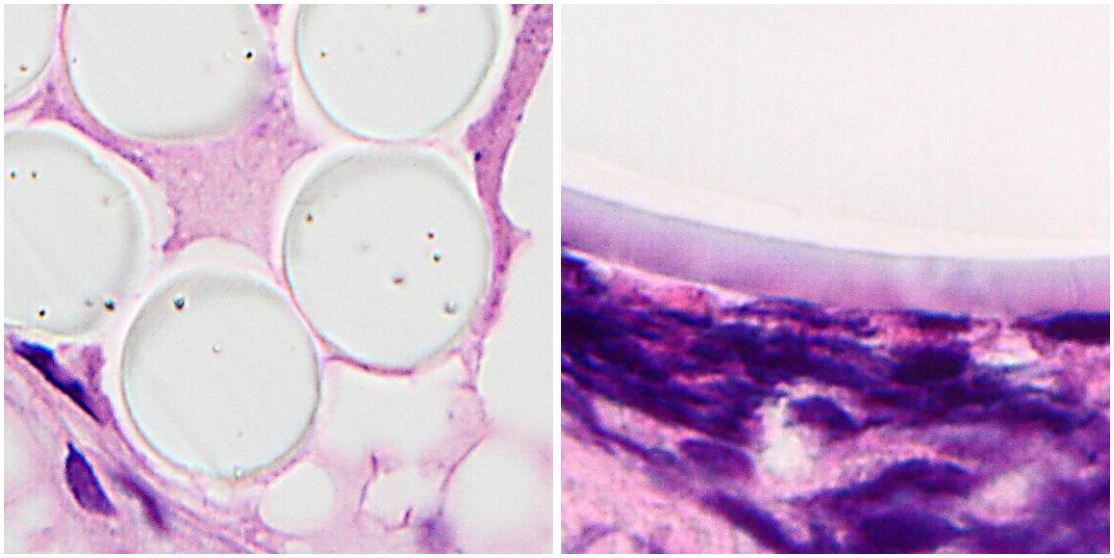


Figure set 18b. Cropped to the same magnification factor, non-polypropylene multifilament suture on the left and Gynemesh (polypropylene) on the right, H&E, 100x objective.
Both materials have been implanted at the same time. The multifilament suture fibers do not have any outer layer. Polypropylene formed a layer of altered material.

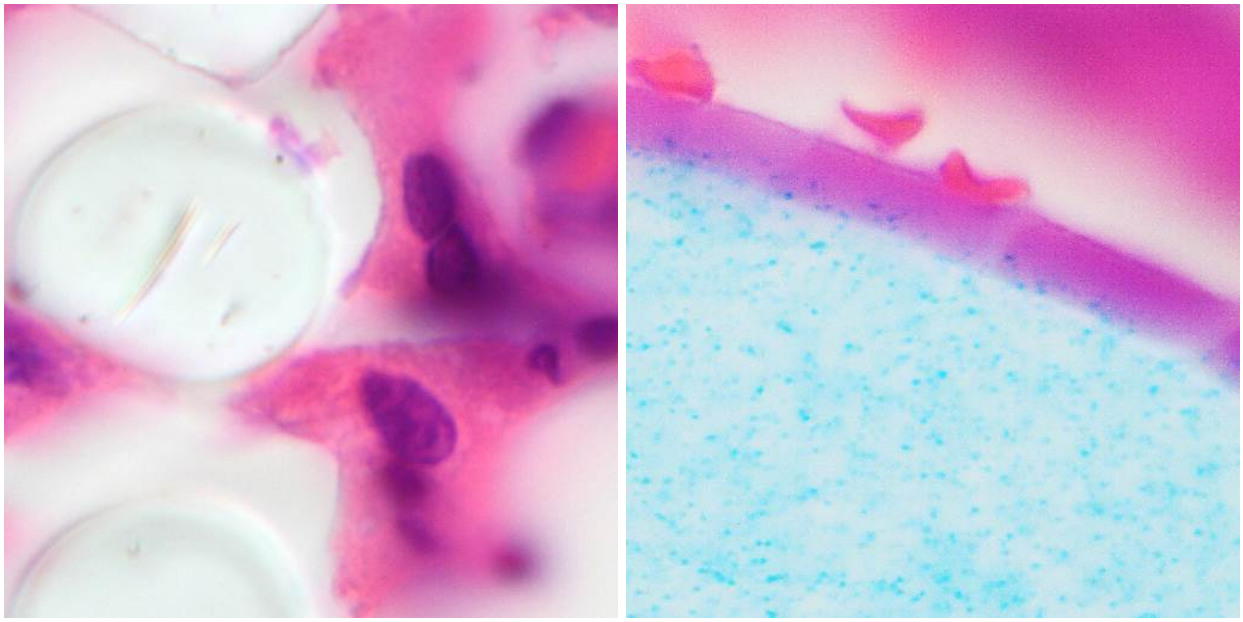


Figure set 18c. Another case of a multifilament suture present in the specimen, cropped to the same magnification factor, non-polypropylene multifilament suture on the left and a mesh fiber (polypropylene) on the right, H&E, 100x objective.

Both materials have been implanted at the same time. The multifilament suture fibers do not have any outer layer. Polypropylene formed a layer of altered material.

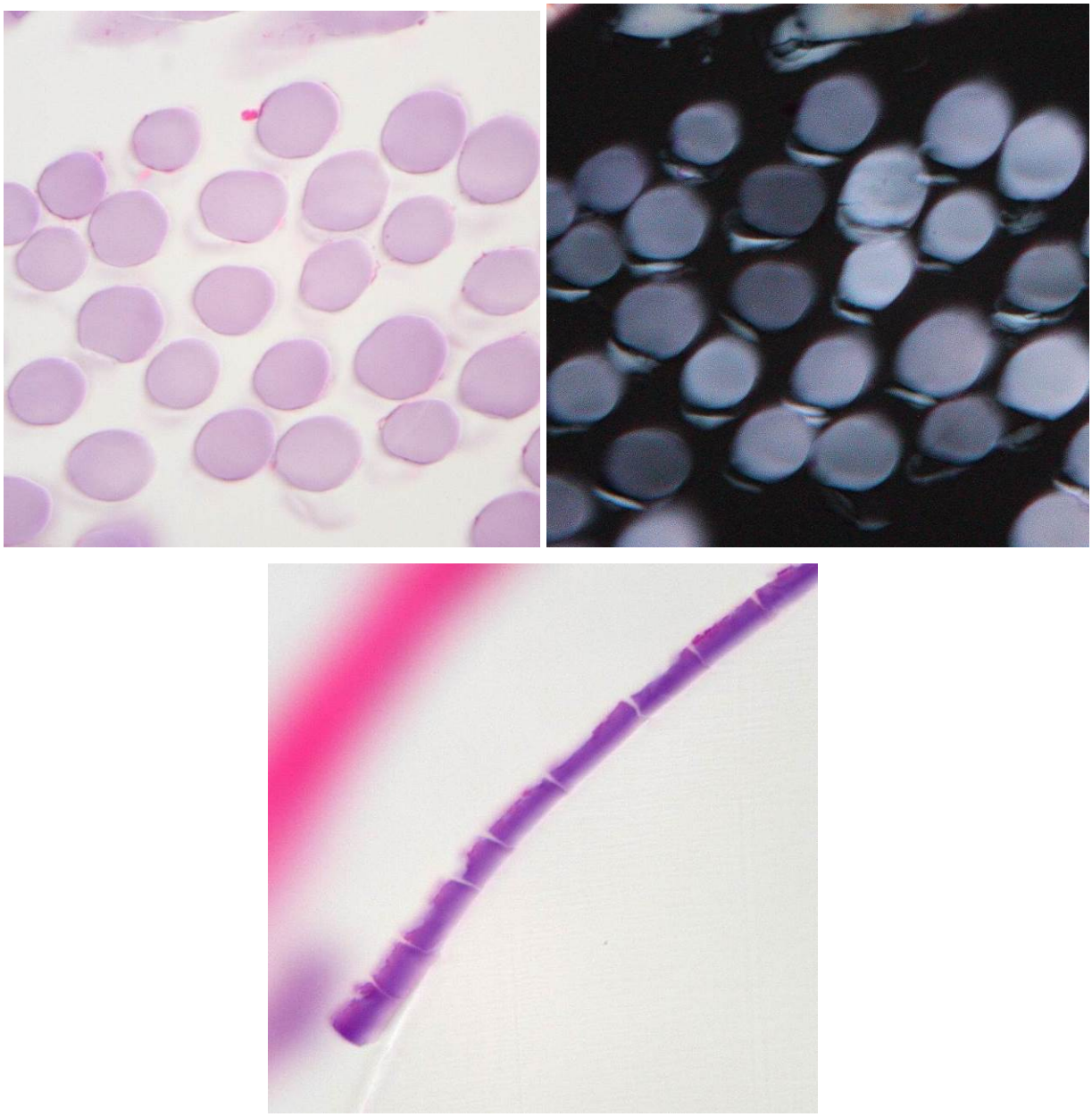


Figure set 18d. Cropped to the same magnification factor, non-polypropylene multifilament suture at the top and a TVT (polypropylene) in the lower image, H&E, 100x objective.
In this case the suture was used intraoperatively and had no in vivo exposure to the body. Note that the matrial absorbed the dye. Although non-degraded, a porous polymer can absorb dyes. The finding shows a non-specific non-chemical (not covalent) nature of staining.

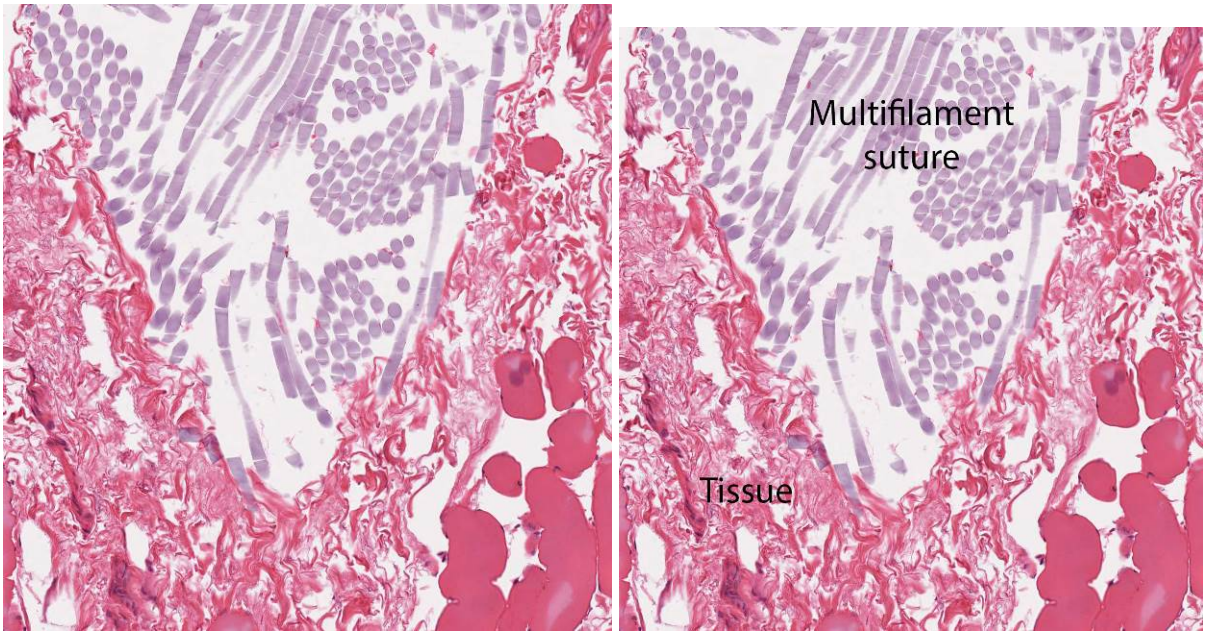
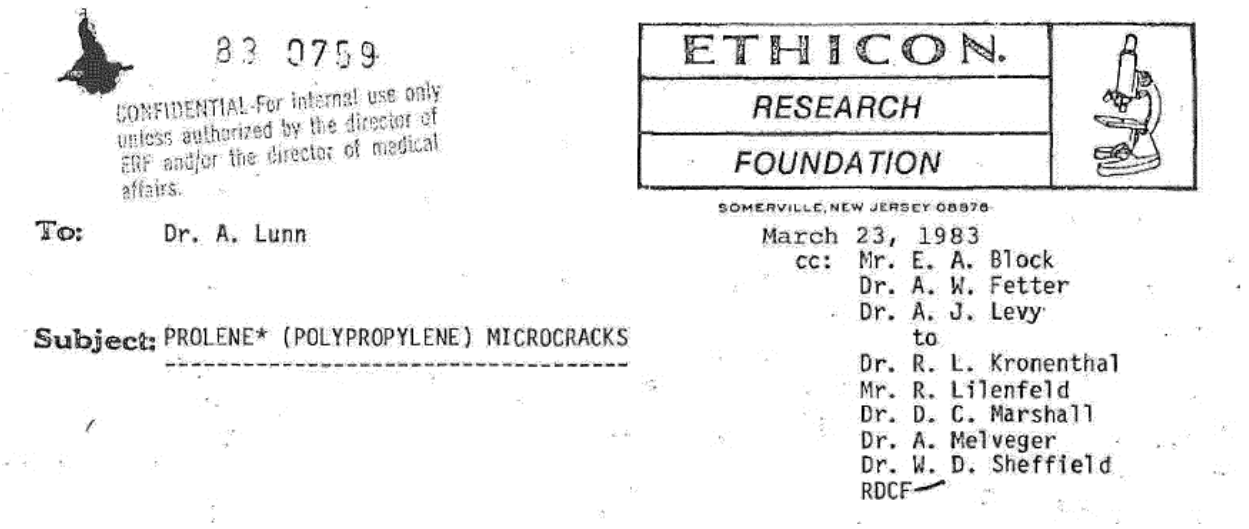


Figure set 18e. Image shows that there is no vital reaction to the multifilament suture, H&E, 20x objective.

The suture had no exposure to the body, it was used during the exscision surgery.

Images and text from the Ethicon study using identical methodology to detect degradation of polypropylene.



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ETHICON.
RESEARCH
FOUNDATION

SOMERVILLE, NEW JERSEY 08876

To: Dr. A. Lunn

March 23, 1983

cc: Mr. E. A. Block
Dr. A. W. Fetter
Dr. A. J. Levy
to
Dr. R. L. Kronenthal
Mr. R. Lilenfeld
Dr. D. C. Marshall
Dr. A. Melveger
Dr. W. D. Sheffield
RDCF

Subject: PROLENE* (POLYPROPYLENE) MICROCRACKS

Figure set 19a.

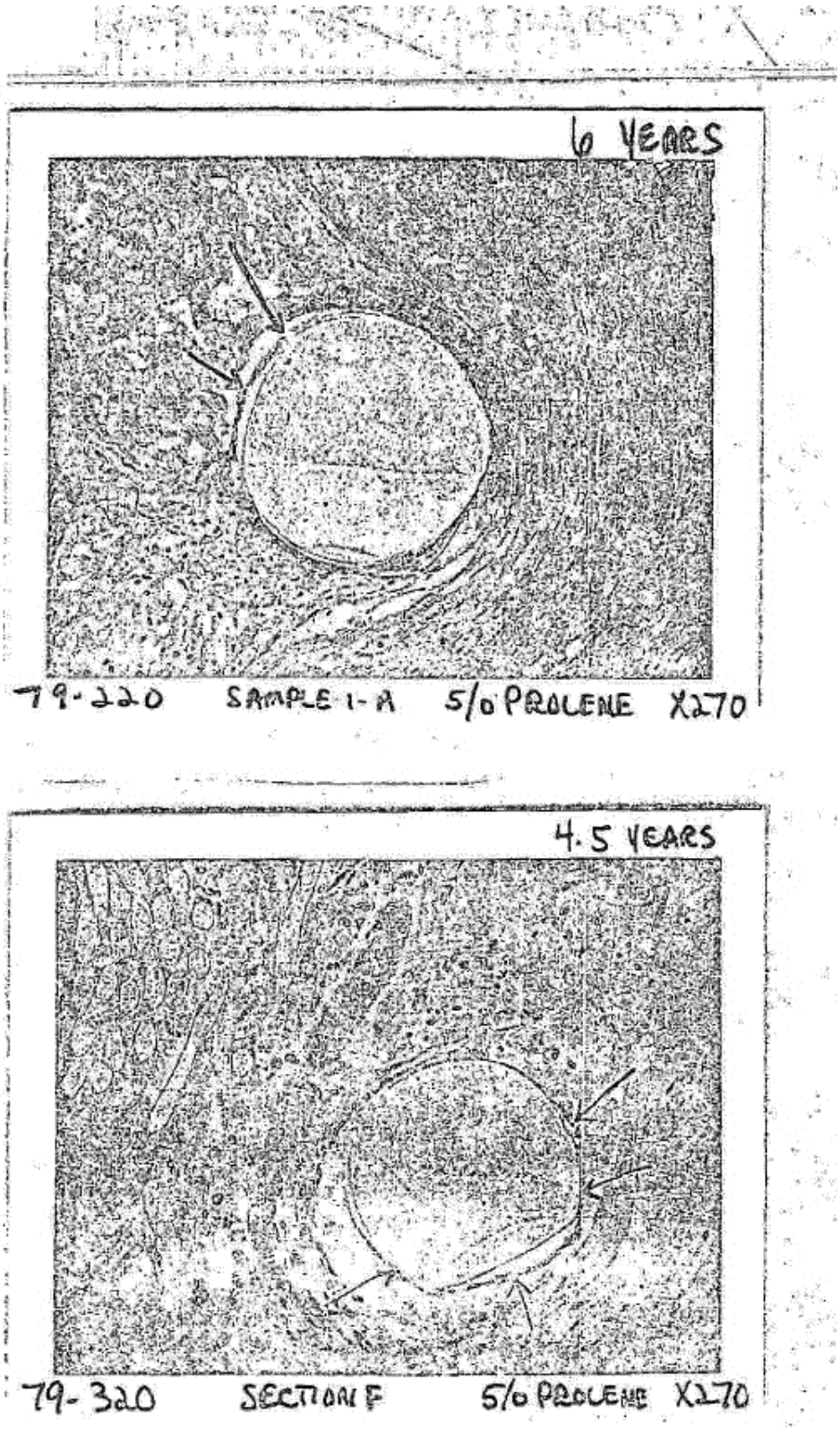

Figure set 19b.

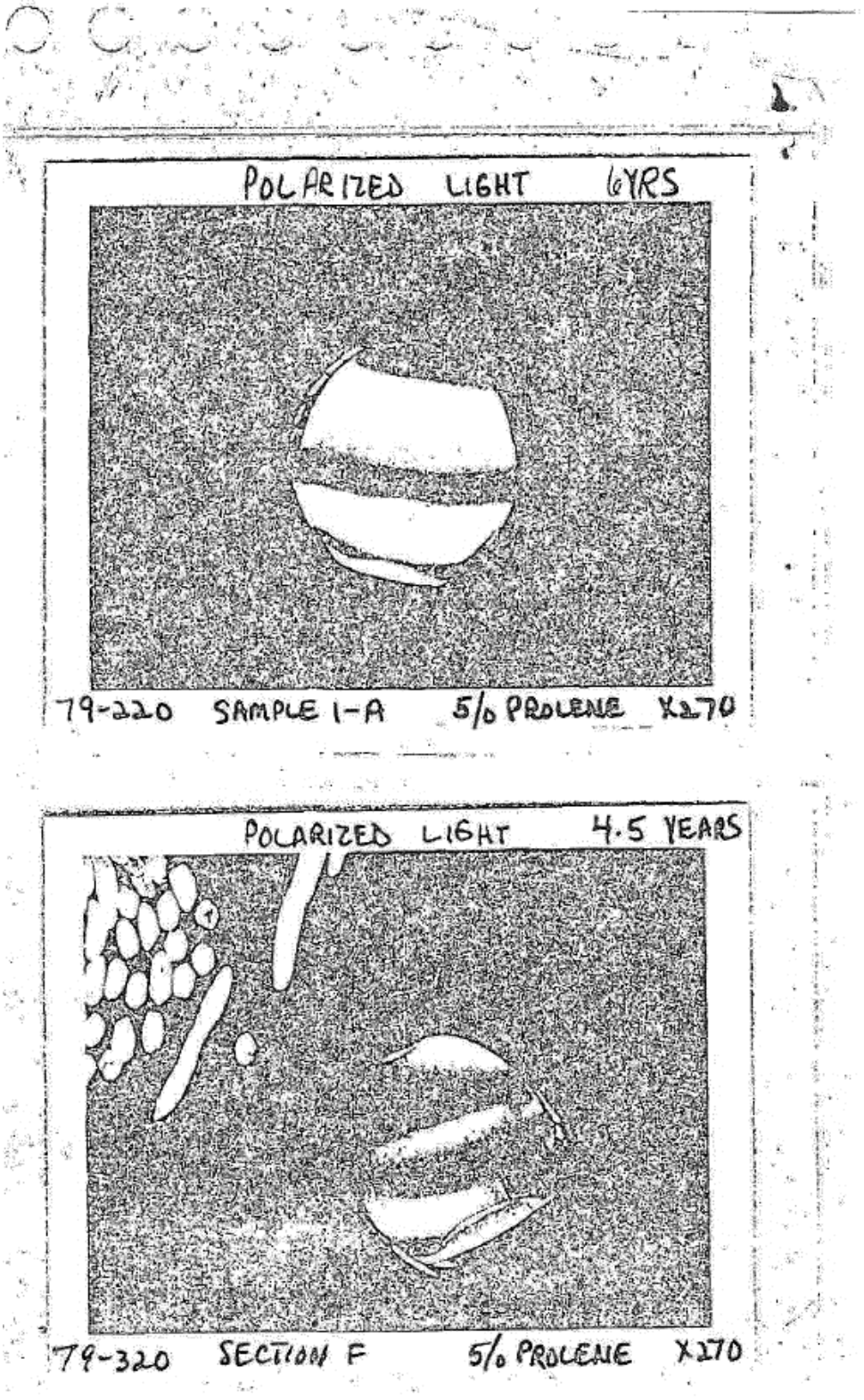

Figure set 19c.

In histological sections of sample 6, a cracked surface layer measuring 3.0-4.5 microns was seen, accounting for approximately 8.5% of the total cross-sectional area. This layer was birefringent when examined under polarized light microscopy. Phloxine stain had completely penetrated the cracked layer, Figure 5, or was confined to the periphery of the surface layer, Figure 6. Particles of blue dye were evident within the cracked layer, Figure 5. There was no evidence of migration of particles from the cracked surface layer into the surrounding tissue.

DISCUSSION

In this study, it was shown that a 5-0 PROLENE suture in residence within a human vascular graft for 7 years displayed surface cracking. Other specimens of size 3-0 and 4-0 in this study from cardiovasular tissue specimens did not show surface cracking. The depth of the cracking in sample #6 was 3.0 - 4.5 microns in thickness which is consistent with other specimens, from previous samples up to 6 years post-op, ERF 84-132. This additional evidence from a 7 year specimen suggests no increase in thickness

of the cracked layer over time. The cracked layer appeared blue in gross specimens and blue dye particles were evident in histological sections of the layer. This would indicate that the layer is dyed PROLENE polymer and not an isolated protein coating on the strands.

Figure set 19d.

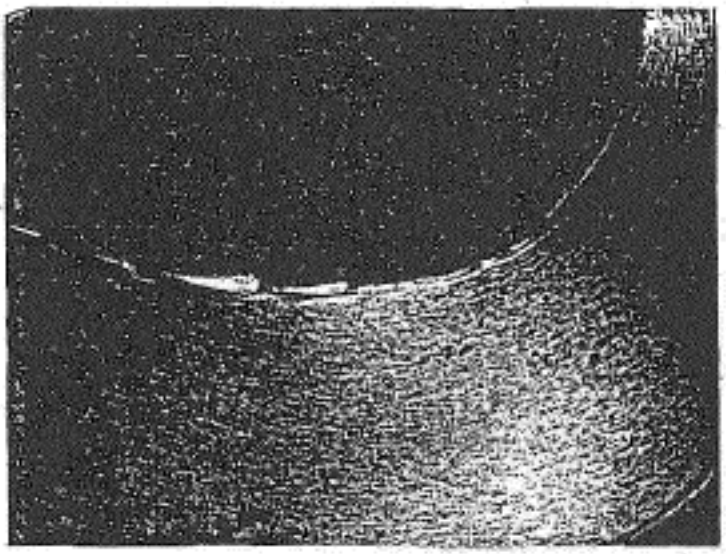

Figure 5 - Histological longitudinal sections of PROLENE from sample 6, block A, Phloxine stained. A 3.0-4.5 micron cracked surface layer is birefringent when viewed with polarized light, magnification x300.

Figure set 19e. Image from the 1983 Ethicon study.

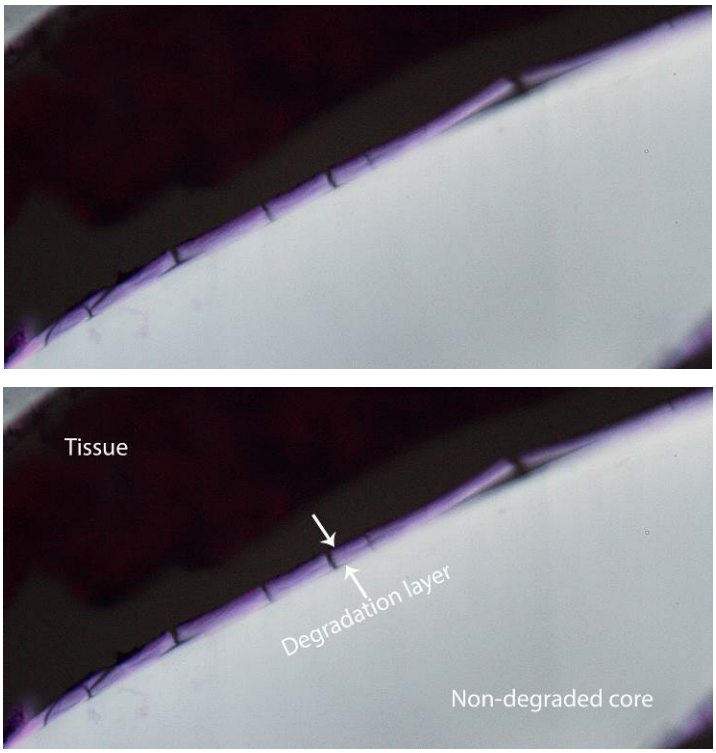

Figure set 19f. Image taken in 2015.

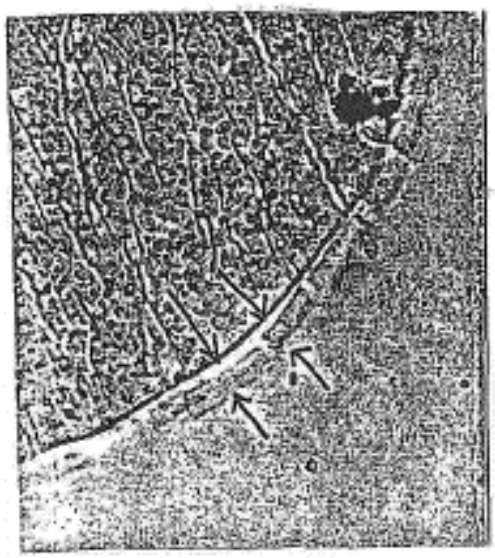

Figure 6 - Histological cross-section of sample 6, block D, Phloxine stained. Pink staining is limited to the periphery of the cracked layer in some areas. Blue dye particles can be seen within the cracked layer, magnification x1100.

Figure set 19g. Image from the 1983 Ethicon study.

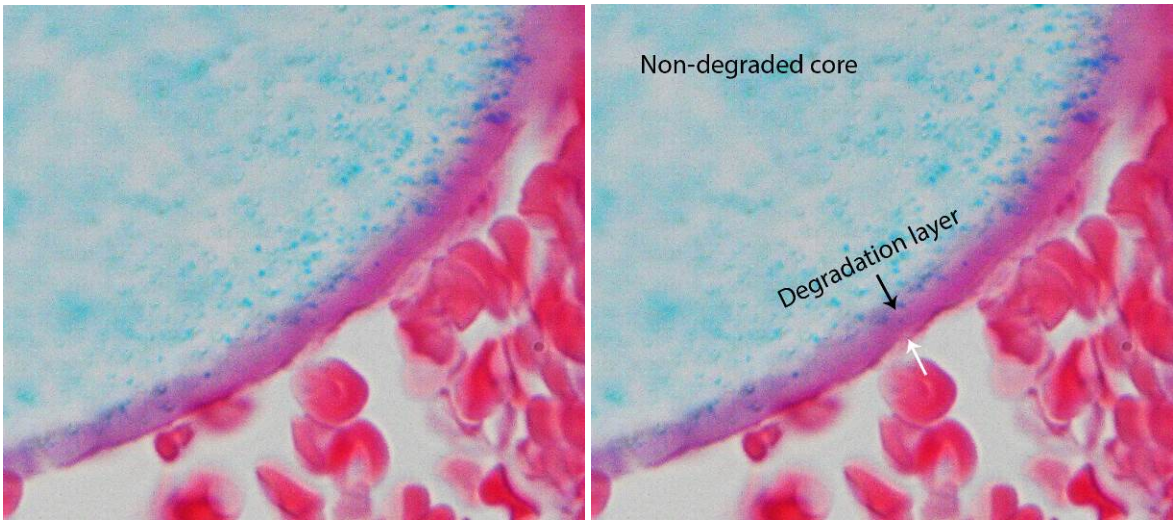

Figure set 19h. Image taken in 2015. Blue dye particles = blue granules; have also been as an internal marker of polypropylene in the 1983 Ethicon study.

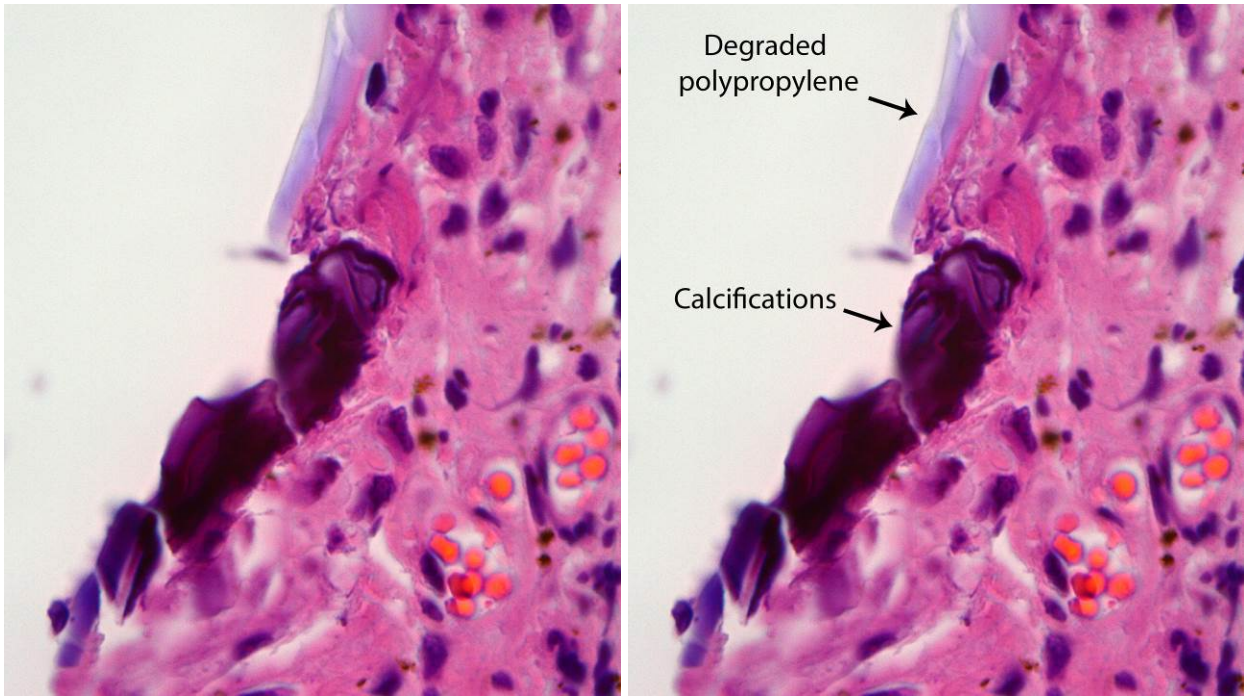

Figure set 20a. Degenerative calcifications triggered by the mesh and the body reaction to it, H&E, x100.

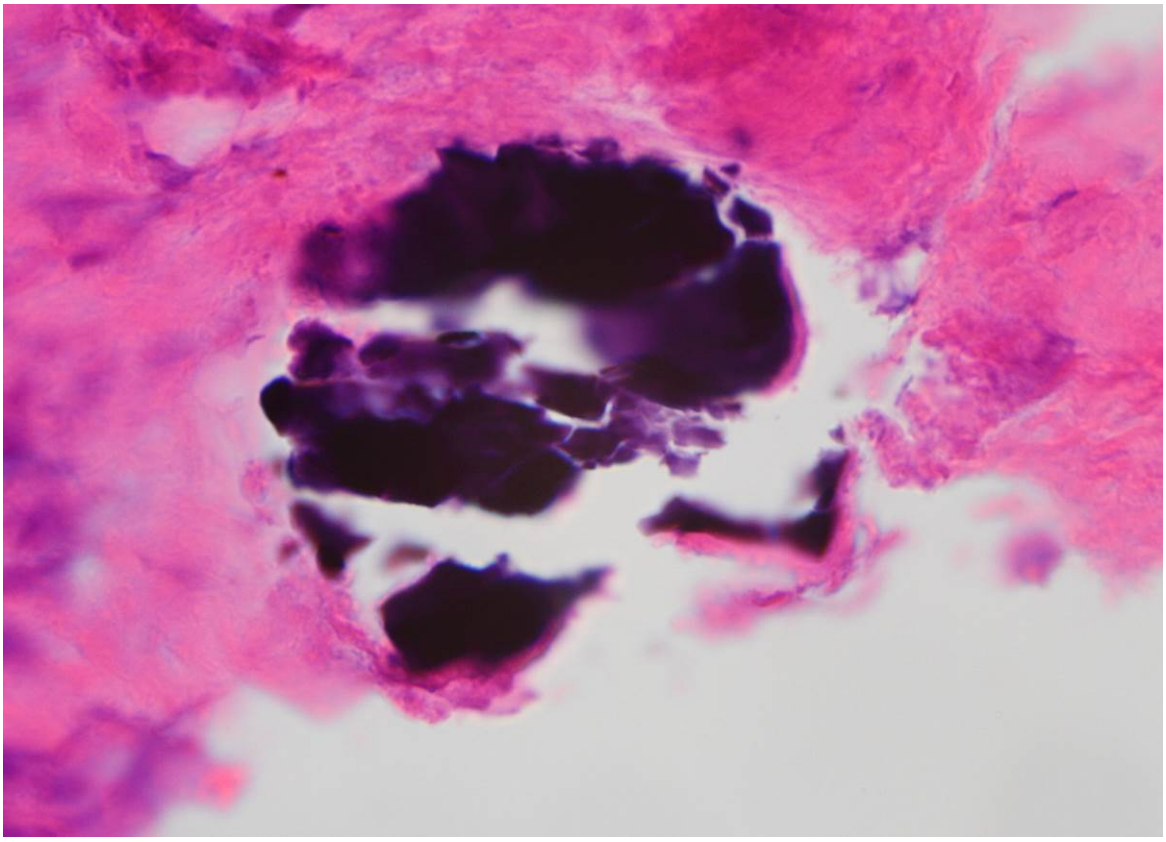

Figure set 20b. Degenerative calcifications triggered by the mesh and the body reaction to it, H&E, x100.In cases wre the mesh migrates into the bladder these calcifications can grow to large bladder stones [589-594].

Reliance materials

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Exhibit A

CURRICULUM VITAE
Last updated February 2014

Name: Vladimir Iakovlev; born May 21, 1969

Address (home): 232 Horsham Ave.
Toronto, Ontario, M2N2A6, Canada
Tel: 416-9291528 (home); 647-6801500 (cell)
iakovlev.v@gmail.com

Address (work): St. Michael's Hospital, Division of Pathology
30 Bond St., Cardinal Carter, Room 2-093
Toronto, ON, M5B1W8, Canada
Bus: 416-864-6060#3176
iakovlevv@smh.ca

Citizenship: Canadian

Current position: Director of Cytopathology, Division of Pathology, St. Michael's Hospital,
Assistant Professor, Department of Laboratory Medicine and Pathobiology, University of Toronto, Toronto, Ontario, Canada

Professional qualifications

- 2006 — American Board of Pathology, Anatomical Pathology
- 2006 — Royal College of Physicians and Surgeons of Canada, Anatomical Pathology
- 2002 — United States Medical Licensing Exams (USMLE 1-3)
- 2000 — Medical Council of Canada (LMCC)
- 2000 — Educational Commission for Foreign Medical Graduates (ECFMG)
- 1994 — Medical Doctor, Tyumen State Medical Institute, Russia

Medical Licensure

- 2007-current — Independent practice, Ontario, Canada (CPSO)
- 2006-current — Full unrestricted license, State of Michigan, USA

Academic appointments

- 2008 — Assistant Professor, Department of Laboratory Medicine and Pathobiology, University of Toronto
- 2007 — Lecturer, Department of Laboratory Medicine and Pathobiology, University of Toronto

Awards and grants

- 2008 — Dean's Fund award , Faculty of Medicine, University of Toronto, total $10,000 for 5 years
- 1986-1992 — Stipend for high academic results, Tyumen Medical academy, 6 times during the course of studies

Professional membership

- 2007-current — Member, Canadian Association of Pathologists
- 2006-current — Fellow, Royal College of Physicians and Surgeons of Canada (FRCPC)
- 2006-current — Fellow, College of American Pathologists (FCAP)
- 2002-current — Member, United States and Canadian Academy of Pathology
- 2001-current — Canadian Medical Protective Association

EDUCATION

Fellowship

- 2005 – 2007
  - Canadian Institute for Health Research (CIHR) Molecular Oncological Pathology program; Ontario Cancer Institute/Princess Margaret Hospital, Toronto, Canada

-Training program for translational oncologic pathology, projects at two labs:

1. Dr. Susan Done, clinician-scientist, breast pathologist
   Focus: data analysis of array Comparative Genomic Hybridization, validation by immunohistochemistry, image and data analysis.

2. Dr. David Hedley, clinician-scientist, medical oncologist
   Focus: image and data analysis of immunohistochemistry, assessment of sampling error due to intratumoral heterogeneity.

Residency

- 2001 – 2006
  - Anatomic Pathology, University of Manitoba, Winnipeg, Manitoba, Canada. Royal College of Physicians of Canada and American Board of Pathology accredited program
  - Elective: Orthopaedic pathology (2 months), Mount Sinai Hospital, University of Toronto, Toronto, Canada.

Observership

- 2000-2001
  - Pathology department, Sunnybrook and Women's College Health Sciences Centre, Toronto, Canada.

Medical education

- 1986-1994
  - Tyumen State Medical Institute (Academy), Tyumen, Russia.

Medical Doctor degree (extended by two years due to mandatory military service).

Projects/interests:
- part time employment for anatomical dissections
- student project "WBC differential changes during menstrual cycle"
- internship research project "Fusion of bone tissues with porous and shape memory titanium alloys".

WORK EXPERIENCE

- 2012- current
  - Director of Cytopathology, Division of Pathology, St. Michael's Hospital, Toronto, Canada

  - GYN and medical cytology, liquid based. 18,000 annual case load for the department; 3 full time and 1 part-time cytotechnologists; medical cytology includes EBUS FNA of the pancreato-biliary tree and endobronchial sampling of lymph nodes with on-site assessment.

- 2007-current
  - Anatomic Pathologist, Division of Pathology, St. Michael's Hospital, Toronto, Canada

  - Anatomic pathology and cytology at a tertiary teaching hospital. oncologic GI, breast, GU, endocrine services and a mix of other areas
  - Intraoperative consultations with occasional coverage of neuropathology
  - Interests in non-neoplastic bone, head/neck and endocrine pathology
  - Tumor rounds for ENT/endocrine group

- 1994-1997
  - Physician, Tyumen Rehabilitation Center, Tyumen, Russia

  -Amputee and musculo-skeletal outpatient clinic.

ADMINISTRATIVE EXPERIENCE

- 2012-current
  - Director of Cytopathology, Division of Pathology, St. Michael's Hospital

- 2010-current
  - Member, Committee for Undergraduate Medical Education of the Department of Laboratory medicine and Pathobiology, Faculty of Medicine, University of Toronto, Toronto, Canada

- 2008-2013
  - Pathologist scheduling, Division of Pathology, St. Michael's Hospital, Toronto, Canada

- 2010-2013
  - Chair, Quality of Care committee, Department of Laboratory Medicine, St. Michael's Hospital, Toronto, Canada

- 2003 – 2005
  - Chief resident, Anatomical Pathology program, University of Manitoba, Winnipeg, Canada

- 2004-2005
  - Trainee member, Promotion committee, Pathology department, University of Manitoba, Winnipeg, Canada

- 2002-2004
  - Board member, PARIM (Professional Association of Residents and Interns of Manitoba), Winnipeg, Canada

- 1986-1987
  - Medical student representative, Medical professional union, Tyumen Medical Institute, Tyumen, Russia

TEACHING EXPERIENCE

- 2008-present
  - Undergraduate Medical Education and Department of Laboratory medicine and Pathobiology, Faculty of Medicine, University of Toronto, Toronto, Canada

-Pathobiology of Disease, Problem Based Learning sessions for second year medical students
-Supervision of pathology resident; gross rounds, frozen sections, sign out and research projects
-Slide teaching sessions for pathology residents

- 2007-present
  - Advanced Clinician Practitioner in Arthritis Care Program, St. Michael's Hospital, University of Toronto, Toronto, Canada

-Bone disease presenting as MSK pain, lectures

- 2003-2005
  - Undergraduate Medical Education, Faculty of Medicine, University of Manitoba, Winnipeg, Canada

-Pathology of Musculoskeletal system, Lectures and practicum sessions for medical students
- Pathology course, practicum sessions for medical students

- 2004- 2005
  - MSc program for pathology assistants, Department of Pathology, University of Manitoba, Winnipeg, Canada

-Microscopic pathology, weekly sessions

- 2004 –2005
  - Postgraduate Education, Faculty of Medicine, University of Manitoba, Winnipeg, Canada

-Pathology of bone, teaching rounds for orthopaedic residents

- 1996-1997 — Tyumen Rehabilitation Centre, Tyumen, Russia
  - Amputee and musculo-skeletal outpatient management Training and supervision of orthopaedic interns

WORKSHOPS

- 2013, November — Correlation Between EUS/FNA of Pancreas and Resection Specimens
  Pathology Update, CME event by the Department of Laboratory Medicine and Pathobiology, University of Toronto, Toronto, Canada
- 2013, May — Difficult Diagnoses in Cytology: Pancreatic FNA, Bile Duct Brushings and Lung EBUS.
  64th Annual Meeting of the Canadian Association of Pathologists 27th World Congress of the World Association of Societies of Pathology and Laboratory Medicine. Quebec City, Canada

MANUSCRIPT PEER REVIEW

- 2012 — Annals of Oncology
- 2013 — Artificial Intelligence in Medicine

PUBLICATIONS

Peer-reviewed

1. A. H. Girgis, **V. V. Iakovlev**, B. Beheshti, J. Bayani, J. A. Squire, A. Bui, M. Mankaruos, Y. Youssef, B. Khalil, H. Khella, M. Pasic and G. M. Yousef
   Multi-level Whole Genome Analysis Reveals Candidate Biomarkers in Clear Cell Renal Cell Carcinoma. Cancer Research 2012, 72 (20), 5273-5284.

2. Z W Chen, A M Mulligan, P Henry, **V Iakovlev**.
   Mixed Encapsulated Papillary Carcinoma/Invasive Ductal Carcinoma of the Male Breast with Metastasis to Lymph Node. Canadian Journal of Pathology 2012, 4(4) 118-122.

3. M H Chui, C J Streutker, A M Mulligan, **V V Iakovlev**.
   Histological and immunohistochemical features to distinguish between adipocyte hyperplasia, atrophy and neoplasia: differential diagnosis of small round adipocytes in Crohn's disease. Histopathology 2012, 61(5), 984-985

4. **Iakovlev V**, Siegel E, Tsao MS, Haun RS.
   Expression of kallikrein-related peptidase 7 predicts poor prognosis in patients with unresectable pancreatic ductal adenocarcinoma. Cancer Epidemiol Biomarkers Prev. 2012 Jul; 21(7):1135-42.

5. Cawthorn TR, Moreno JC, Dharsee M, Tran-Thanh D, Ackloo S, Zhu PH, Sardana G, Chen J, Kupchak P, Jacks LM, Miller NA, Youngson BJ, **Iakovlev V**, Guidos CJ, Vallis KA, Evans KR, McCready D, Leong WL, Done SJ.
Proteomic Analyses Reveal High Expression of Decorin and Endoplasmin (HSP90B1) Are Associated with Breast Cancer Metastasis and Decreased Survival. PLoS One. 2012;7(2):e30992.

6. N. Arneson, J. Moreno, **V. Iakovlev**, A. Ghazani, K. Warren, D. McCready, I. Jurisica, and S. J. Done.
Comparison of Whole Genome Amplification Methods for Analysis of DNA Extracted from Microdissected Early Breast Lesions in Formalin-Fixed Paraffin-Embedded Tissue, ISRN Oncology, 2012;2012:710692.

7. Dubinski W, Gabril M, **Iakovlev VV**, Scorilas A, Youssef YM, Faragalla H, Kovacs K, Rotondo F, Metias S, Arsanious A, Plotkin A, Girgis AH, Streutker CJ, Yousef GM.
Assessment of the prognostic significance of endoglin (CD105) in clear cell renal cell carcinoma using automated image analysis. Hum Pathol. Epub 2011 Dec 26.

8. **V V Iakovlev**, M Gabril, W Dubinski, A Scorilas, YM Youssef, H Faragalla, K Kovacs, F Rotondo, S Metias, A Arsanious, A Plotkin, AHF Girgis, CJ Streutker, GM Yousef.
Microvascular Density as an Independent Predictor of Clinical Outcome in Renal Cell Carcinoma: an Automated Image Analysis Study. Lab Invest. 2012 Jan;92(1):46-56. doi: 10.1038/labinvest.2011.153. Epub 2011 Oct 31.

9. M Sidiropoulos, A Lausman, M Yudin, **V V Iakovlev**.
Rising Incidence of Syphilis Infection in Canada: A Case Report of Syphilitic Placentitis. Canadian Journal of Pathology 2010 Fall 2:19.

10. C Wang* , **V Iakovlev*** , V Wong , S Leung , K Warren , G Iakovleva , N Arneson , M Pintilie , N Miller , B Youngson , D McCready, S Done.
Genomic analysis of primary breast cancers and their sentinel and distal lymph node metastases: an aCGH study. Genes, Chromosomes & Cancer 2009 Dec;48(12):1091-101.

11. M Pintilie, **V Iakovlev**, A Fyles, D Hedley, M Milosevic, R Hill.
Heterogeneity and power in clinical biomarker studies. Journal of Clinical Oncology 2009 Mar 20;27(9):1517-21.

12. **V V Iakovlev**, N C R Arneson, V Wong, S Leung, G Iakovleva, C Wang, K Warren, M Pintilie, S J Done.
Genomic differences between pure ductal carcinoma in situ of the breast and that associated with invasive disease: a calibrated aCGH study. Clinical Cancer Research. 2008 Jul 15;14(14):4446-54.

13. Pham NA, Schwock J, **Iakovlev V**, Pond GR, Hedley DW, Tsao MS.
Immunohistochemical analysis of changes in signaling pathway activation

downstream of growth factor receptors in pancreatic duct cell carcinogenesis. BMC Cancer. 2008 Feb 6;8(1):43

14. **V Iakovlev**, M Pintilie, A Morrison, A Fyles, R Hill, D Hedley. Effects of distributional heterogeneity on the analysis of tumor hypoxia based on Carbonic Anhydrase IX. Laboratory Investigation, 2007;87:1206-17**

15. C Wang, R Navab, **V Iakovlev**, M-S Tsao, D R McCready, S J Done. Abelson-interactor protein 1 (ABI-1/E3b1) positively regulates breast cancer cell proliferation, migration and invasion. Molecular Cancer Research, 2007;5:1031-9**

16. **V V Iakovlev***, R S Goswami*, J Vecchiarelli, N C R Arneson, S J Done. Quantitative detection of circulating epithelial cells by Q-RT-PCR. Breast Cancer Research and Treatment, 2007;107:145-54

17. N A Pham, A Morrison, J Schwock, S Aviel-Ronen, **V Iakovlev**, M Tsao, J Ho and D Hedley. Quantitative image analysis of immunohistochemical stains using a CMYK color model. Diagnostic Pathology 2007, 2:8(1-10).

*Equal first author contribution
**Figures prepared by the author were used for the front page of the journal issue

Abstracts

1. J. Moreno, R Nair 1, N.A. Miller, B.J. Youngson, **V. Iakovlev**, M. Pintile, D. McCready, S.J. Done.
   DCIS Heterogeneity: An integrated RNA-miRNA analysis. Modern Pathology 2012; 25 Supp: 54A

2. W Dubinski, M Gabril, **V Iakovlev**, Y Youssef, K Kovacs, S Metias, F Rotando, M Moussa, C Streutker, GM Yousef.
   Automated Image Analysis of Endoglin and Microvascular Density in Clear Cell Renal Cell Carcinoma and Its Prognostic Significance. Modern Pathology 2011; 24, 1s: 189A

3. D Tran-Thanh, D-Y Wang, **V Iakovlev**, C Wang, JC Moreno, S Boerner, N Miller, B Youngson, WL Leong, SJ Done.
   Mapping Molecular Alterations in Breast Cancer Using Mammary Ductoscopy. Modern Pathology 2011; 24, 1s: 456A

4. W Dubinski, **V Iakovlev**, M Gabril, Y Youssef, K Kovacs, S Metias, M Mankaruous, GM Yousef.
   Automated Image Analysis of Microvascular Density in Clear Cell Renal Cell Carcinoma and Its Prognostic Utility. Modern Pathology 2010; 23 Supp: 187A

5. H. Faragalla, **V. Iakovlev.**
   Benign symmetric lipomatosis as a late complication to chemotherapy, a case report. 60th Annual Meeting of the Canadian Association of Pathologists, 2009. Pathology - Research and Practice, 2010 206(3): 199 P903**.**

6. M. Sidiropoulos, A. Lausman, M. Yudin, **V. Iakovlev.**
   Rising incidence of syphilis infection in Canada: a case report of syphilis placentitis. 60th Annual Meeting of the Canadian Association of Pathologists, 2009. Pathology - Research and Practice, 2010 206(3): 210 P955**.**

7. D Tran-Thanh, **V Iakovlev**, C Wang, V Wong, K Warren, N C Arneson, D McCready, S Boerner, N Miller, B Youngson, W Leong and S J Done.
   Identification of molecular alterations leading to malignancy in ductoscopically procured mammary epithelial cells. 2009 USCAP meeting. Modern Pathology, 2009 22,1S:96A.

8. **Vladimir Iakovlev**, Nona Arneson, Vietty Wong, Chunjie Wang, Stephanie Leung, Gaiane Iakovleva, Keisha Warren, Melania Pintilie, Susan Done"
   Genomic alterations associated with the progression to invasive breast cancer revealed by array comparative genomic hybridization. Virchows Archiv, 2008, 452:S1–S286.

9. Melania Pintilie, **Vladimir Iakovlev**, Michael Milosevic, David Hedley, Anthony Fyles, Richard P. Hill.
   Heterogeneity and power in clinical marker studies. National Cancer institute proceedings of the meeting Advancing Cancer Research Through Biospecimen Science, 2008, programme.

10. D Tran-Thanh, **V Iakovlev**, C Wang, V Wong, K Warren, N C Arneson, W Leong, D McCready, S Boerner and S J Done"
    Identification of Molecular Alterations leading to Malignancy in Ductoscopically procured Epithelial Cells. 2008 AACR annual meeting programme.

11. Chunjie Wang, **Vladmir V Iakovlev**, Vietty Wong, Stephanie Leung, Keisha Warren, Gaiane Iakovleva, Nona C R Arneson, Naomi Miller , Bruce Youngson , David R McCready, Susan J Done.
    Genomic alterations in primary breast cancers and their sentinel lymph node metastases detected by array CGH. 2008 AACR annual meeting programme.

12. **V V Iakovlev**, A Morrison, R Hill, D Hedley.
    A method of assessment of sampling error in biological tissues. 58th Annual Meeting of the Canadian Association of Pathologists, 2007. Pathology - Research and Practice, 2008, 204:53.

13. **V V Iakovlev**, N C Arneson, C Wang, S J Done.
    Segments of DNA copy number preferentially altered in invasive breast cancer. 58th Annual Meeting of the Canadian Association of Pathologists, 2007. Pathology - Research and Practice, 2008, 204:31.

14. **V V Iakovlev**, N C Arneson, C Wang, S J Done.
    Genomic changes of in situ and invasive breast cancer identified by array comparative genomic hybridization. Proceedings of American Association for Cancer Research annual meeting, 2007.

15. **V Iakovlev**, M Pintilie, A Morrison, A Fyles, R Hill, D Hedley.
    The effect of histological tissue sample size on the sampling error. Laboratory Investigation, 2007, 87 Sl:1-350A.

16. **V Iakovlev**, R Goswami, N Arneson, J Vecchiarelli, S J Done.
    Quantitative detection of circulating epithelial cells. 57th Annual Meeting of the Canadian Association of Pathologists, 2006. Pathology - Research and Practice, 2006, 202:832.

17. **V Iakovlev**, A Morrison, M Pintile, R Hill, D Hedley.
    Quantitative assessment of heterogeneously expressed markers within histological sections. 57th Annual Meeting of the Canadian Association of Pathologists, 2006. Pathology - Research and Practice, 2006, 202:794.

18. Pham N-A, Schwock J, **Iakovlev V**, Ho J, Hedley D, Tsao M-S.
    Phospho-protein Immunoprofiling: Activated Signaling Pathways in Pancreatic

Ductal Adenocarcinoma. Pancreatic Cancer 2006: Early Detection and Novel Therapeutics. Conference Proceedings,The Lustgarten Foundation for Pancreatic Cancer Research and AACR, 2006:19.

INVITED SPEAKER

- Sampling error and development of sampling strategies for biological tissues. Fields Institute, University of Toronto, Toronto, September 22, 2006.
  http://www.fields.utoronto.ca/audio/06-07/CMM_seminars/iakovlev/

PRESENTATIONS

- **V Iakovlev,** C Wang , V Wong , S Leung , K Warren , G Iakovleva , N Arneson , M Pintilie , N Miller , B Youngson , D McCready, S Done.
  Genomic analysis of primary breast cancers and their sentinel and distal lymph node metastases. Roderick Ross Research Day, 2008, St. Michael's Hospital, Toronto. Poster presentation.

- **Vladimir Iakovlev**, Nona Arneson, Vietty Wong, Chunjie Wang, Stephanie Leung, Gaiane Iakovleva, Keisha Warren, Melania Pintilie, Susan Done.
  Genomic alterations associated with the progression to invasive breast cancer revealed by array comparative genomic hybridization. Third Intercontinental congress of pathology, 2008, Barcelona, Spain. Oral presentation.

- K Warren, **V V Iakovlev**, N C R Arneson, V Wong, S Leung, G Iakovleva, C Wang, M Pintilie, S J Done.
  Genomic changes associated with duct carcinoma in situ of the breast: an array comparative genomic hybridization study. Canadian Breast Cancer Research Alliance, fifth scientific conference, 2008,Vancouver, Canada. Poster presentation.

- **V V Iakovlev**, A Morrison, R Hill, D Hedley.
  A method of assessment of sampling error in biological tissues. Roderick Ross Research Day, 2007, St. Michael's Hospital, Toronto. Poster presentation.

- S Leung, N C Arneson, V Wong, K Warren, **V V Iakovlev**, S J Done.
  Validation of breast cancer CGH array data using quantitative real-time PCR Summer student program, University of Toronto, Toronto, 2007. Poster presentation.

- **V V Iakovlev,** N C Arneson, C Wang, S J Done.
  Segments of DNA copy number preferentially altered in invasive breast cancer. 58th Annual Meeting of the Canadian Association of Pathologists, 2007. Oral presentation.

- **V V Iakovlev**.
  Identification of DNA copy number changes in invasive and in situ breast carcinoma. Division of Applied Molecular Oncology seminar, Ontario Cancer Institute/Princess Margaret Hospital, Toronto 2007. Oral presentation.

- **V V Iakovlev**, N C Arneson, C Wang, S J Done.
  Genomic changes of in situ and invasive breast cancer identified by array comparative genomic hybridization. Applied Molecular Oncology Division retreat, Ontario Cancer Institute, Toronto, 2007. Poster presentation.

- **V Iakovlev**, R Goswami, N Arneson, J Vecchiarelli, S J Done.
  Quantitative detection of circulating epithelial cells by Q-RT-PCR. University Health Network research day, Toronto, 2006. Poster presentation.

- **V Iakovlev**, A Morrison, M Pintile, R Hill, D Hedley.
  Quantitative assessment of heterogeneously expressed markers within histological sections. 57th Annual Meeting of the Canadian Association of Pathologists, 2006, St. John's, Newfoundland. Oral presentation.

- **V Iakovlev**, R Goswami, N Arneson, J Vecchiarelli, S J Done.
  Quantitative detection of circulating epithelial cells. Applied Molecular Oncology Division retreat, Ontario Cancer Institute, Toronto, 2006. Poster presentation.

- **V Iakovlev**, R Goswami, N Arneson, J, S J Done.
  Detection of circulating epithelial cells by CK19 mRNA. Campbell Family Institute of Breast Cancer Research Annual Retreat,2006, Kimberly, ON. Poster presentation.

- **V V Iakovlev**.
  Analysis of Carbonic Anhydrase IX content within cervical cancer biopsies. Hypoxia Group meeting; 2005, Ontario Cancer Institute, Toronto. Oral presentation.

- **V Iakovlev**.
  LM and EM morphological pattern correlation of malignant spindle cell neoplasms (a pilot study), annual residents research day, 2004; Pathology Department, University of Manitoba, Winnipeg. Oral presentation.

- **V Iakovlev**.
  Comparative analysis of clinical diagnostic discrepancies in the era of declining autopsy rate, annual residents research day, 2003, Pathology Department, University of Manitoba, Winnipeg. Oral presentation.

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p. 21, heading		Estimated cropping magnifications are shown as approximate microscope objective.
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p. 48, figure legend	10x	4x
p. 60, figure legend	(bladder) muscle	(bladder) and rectal muscle
p. 61, figure legend	(bladder) muscle	(bladder) or rectal muscle
p. 76, figure legend	2.5x	20x
p. 99, figure legend	expert (arrow).	expert.
p. 102, figure legend	TVT fiber	mesh fiber